

Work Order ID 107683

September 27-13 1:09:57 PM

107683

Page 1

Item ID: 646.3314

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Blade

Start Date: 9/27/13 Start Qty: 8.00

8

Cust Item ID:

Required Date: 9/27/13 Req'd Qty: 8.00

8

Customer:

Reference:

Approvals: Process Plan: ML5

Date: 13-09-30 Tooling:

Date:

Run Start

NR1

QC:

Date: SPC (Y/N):

Date:

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr								
----------	--------------	--	--	--	--	--	--	--	--

646.3300	N/C								
----------	-----	--	--	--	--	--	--	--	--

100	BAND SAW	0.00	MH	13/10/03	8	Ø			
-----	----------	------	----	----------	---	---	--	--	--

100									
-------	--	--	--	--	--	--	--	--	--

Bandsaw	Memo	0.00							
---------	------	------	--	--	--	--	--	--	--

Jespa Bandsaw	Cut Blank at 5.050"								
---------------	---------------------	--	--	--	--	--	--	--	--

110	HAAS CNC VERTICAL MACHINING #1	0.00	JFC	2013-10-05	8	Ø			
-----	--------------------------------	------	-----	------------	---	---	--	--	--

110	Memo	0.00							
-------	------	------	--	--	--	--	--	--	--

HAAS CNC vertical machine #1	1-Machine per folio FB147								
------------------------------	---------------------------	--	--	--	--	--	--	--	--

DWG REV: N/C	FOLIO REV: AA								
--------------	---------------	--	--	--	--	--	--	--	--

--	--	--	--	--	--	--	--	--	--

2- deburr and break all sharp edges except otherwise noted

NCR: Yes / No

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order: _____		DISPOSITION			AGAINST DEPARTMENT/PROCESS					
		Rework <input type="checkbox"/>	Scrap <input type="checkbox"/>	Use-as-is <input type="checkbox"/>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>		
		Work Order Update <input type="checkbox"/>	Machining <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coor. <input type="checkbox"/>	Quality <input type="checkbox"/>			
			Large Fab <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Supplier <input type="checkbox"/>			
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector	
Doc/Data										
Equip/Tooling										
Operator										
Material										
Setup										
Other										
Process										
Supplier										
Training										
Unapproved										
FAULT CATEGORY										
Landing Gear	General									
	Bending <input type="checkbox"/>	Bend <input type="checkbox"/>	Grain <input type="checkbox"/>	Ovalized <input type="checkbox"/>	Pressure/Forced <input type="checkbox"/>					
	Centre Not Concentric to O/S <input type="checkbox"/>	BOM/Route <input type="checkbox"/>	Hardware <input type="checkbox"/>	Over/Under tolerance <input type="checkbox"/>	Temperature/Cure <input type="checkbox"/>					
	Cracks <input type="checkbox"/>	Broken/Damaged <input type="checkbox"/>	Inspection Incomplete <input type="checkbox"/>	Part Incorrect <input type="checkbox"/>	Weld <input type="checkbox"/>					
	Crushed/Crimped. <input type="checkbox"/>	Burrs <input type="checkbox"/>	Instructions Incomplete/Unclear <input type="checkbox"/>	Part Lost/Missing <input type="checkbox"/>	Wrong Stock Pulled <input type="checkbox"/>					
	Cuffs <input type="checkbox"/>	Contamination <input type="checkbox"/>	Maintenance <input type="checkbox"/>	Part Moved <input type="checkbox"/>						
	Heat Treat <input type="checkbox"/>	Countersink <input type="checkbox"/>	Mislabeled <input type="checkbox"/>	Positioned Wrong <input type="checkbox"/>						
	Inspection Strip in Tube <input type="checkbox"/>	Cut Too Short <input type="checkbox"/>	Misread <input type="checkbox"/>	Power Loss/Surge <input type="checkbox"/>						
	Ripples in Bend <input type="checkbox"/>	Drill Holes <input type="checkbox"/>	Offset <input type="checkbox"/>		Other <input type="checkbox"/>					
	Torque Waves in Extrusion <input type="checkbox"/>	Drawing <input type="checkbox"/>	Out of Calibration <input type="checkbox"/>							
	Turning Sequence <input type="checkbox"/>	Finish <input type="checkbox"/>	Out of Sequence <input type="checkbox"/>							
	Wave/Twist in Tube <input type="checkbox"/>	Folio <input type="checkbox"/>	Outside Dimensions <input type="checkbox"/>							

NCR: Yes / No

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order: _____			DISPOSITION		AGAINST DEPARTMENT/PROCESS								
Part No. _____	Rework <input type="checkbox"/>	Scrap <input type="checkbox"/>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>							
NCR No. _____	Use-as-is <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coor. <input type="checkbox"/>	Quality <input type="checkbox"/>								
	Work Order Update <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>								
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector				
Doc/Data													
Equip/Tooling													
Operator													
Material													
Setup													
Other													
Process													
Supplier													
Training													
Unapproved													
FAULT CATEGORY													
Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped. <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube				General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions						<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge <input type="checkbox"/> Other			

NCR: Yes / No

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order: _____			DISPOSITION			AGAINST DEPARTMENT/PROCESS					
			Rework <input type="checkbox"/>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>				
			Scrap <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coor. <input type="checkbox"/>	Quality <input type="checkbox"/>				
			Use-as-is <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>				
			Work Order Update <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>					
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance		Initial Chief Eng	Action Description		Sign & Date	Verification	QC Inspector
Doc/Data											
Equip/Tooling											
Operator											
Material											
Setup											
Other											
Process											
Supplier											
Training											
Unapproved											
FAULT CATEGORY											
Landing Gear				General							
				Bending <input type="checkbox"/>	Bend <input type="checkbox"/>	Grain <input type="checkbox"/>	Ovalized <input type="checkbox"/>	Pressure/Forced <input type="checkbox"/>			
				Centre Not Concentric to O/S <input type="checkbox"/>	BOM/Route <input type="checkbox"/>	Hardware <input type="checkbox"/>	Over/Under tolerance <input type="checkbox"/>	Temperature/Cure <input type="checkbox"/>			
				Cracks <input type="checkbox"/>	Broken/Damaged <input type="checkbox"/>	Inspection Incomplete <input type="checkbox"/>	Part Incorrect <input type="checkbox"/>	Weld <input type="checkbox"/>			
				Crushed/Crimped. <input type="checkbox"/>	Burrs <input type="checkbox"/>	Instructions Incomplete/Unclear <input type="checkbox"/>	Part Lost/Missing <input type="checkbox"/>	Wrong Stock Pulled <input type="checkbox"/>			
				Cuffs <input type="checkbox"/>	Contamination <input type="checkbox"/>	Maintenance <input type="checkbox"/>	Part Moved <input type="checkbox"/>				
				Heat Treat <input type="checkbox"/>	Countersink <input type="checkbox"/>	Mislabeled <input type="checkbox"/>	Positioned Wrong <input type="checkbox"/>				
				Inspection Strip in Tube <input type="checkbox"/>	Cut Too Short <input type="checkbox"/>	Misread <input type="checkbox"/>	Power Loss/Surge <input type="checkbox"/>				
				Ripples in Bend <input type="checkbox"/>	Drill Holes <input type="checkbox"/>	Offset <input type="checkbox"/>		Other <input type="checkbox"/>			
				Torque Waves in Extrusion <input type="checkbox"/>	Drawing <input type="checkbox"/>	Out of Calibration <input type="checkbox"/>					
				Turning Sequence <input type="checkbox"/>	Finish <input type="checkbox"/>	Out of Sequence <input type="checkbox"/>					
				Wave/Twist in Tube <input type="checkbox"/>	Folio <input type="checkbox"/>	Outside Dimensions <input type="checkbox"/>					

Work Order ID 107683

September-27-13 1:09:57 PM

107683

Page 4

Item ID: 646.3314

Accept

N900040100

Setup

Start

NS1

Revision ID:

Item Name: Blade

Start Date: 9/27/13

Start Qty: 8.00

8

Cust Item ID:

Required Date: 9/27/13

Req'd Qty: 8.00

8

Customer:

Stop

NS2

* Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run

Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

170

QC14- Inspect Spray Paint

0.00

8

13.12.09

170

QC

Quality Control

180

Identify as per dwg & Stock Location: Composite 0.00

(Finishing)

0.00

8

13.12.09

180

Packaging

Packaging

Memo

IDENTIFY AS PER APICAL MPP-120 BY STAMPING P# AND REV

190

QC21- Final Inspection - Work Order Release

0.00

13/12/11

13/12/11 JJ

190

QC

Quality Control

Memo

0.00

13/12/10 JJ

NCR: Yes / No

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order: _____			DISPOSITION		AGAINST DEPARTMENT/PROCESS							
			Rework Scrap Use-as-is Work Order Update	Skid-tube Machining Thermoforming Large Fab	Crosstube Small Fab Finishing Composite	Water Jet Prod. Eng. Coor. Rec/Store/Packaging Supplier	Engineering Quality Other					
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector			
Doc/Data												
Equip/Tooling												
Operator												
Material												
Setup												
Other												
Process												
Supplier												
Training												
Unapproved												
FAULT CATEGORY												
Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped. <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube				General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions						<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge	<input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled	<input type="checkbox"/> Other

Picklist Print

September-27-13 1:09:57 PM

Page 1

Work Order ID: 107683

Parent Item: 646.3314

Start Date: 9/27/13

Required Date: 9/27/13

Parent Item Name: Blade

Start Qty: 8.00

Required Qty: 8.00

Comments: IPP REV:A NEW ISSUE 12/11/07 JFS VERIFY BY: JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
MSTEEL-A2- B0.500X1250		Purchased	No			100	f	185.8930	0.421	3.5452632			

AISI102 TOOL STEEL BAR, 0.500 X 1.250

Location	Loc Qty	Loc Code
MAT009	185.8930001	
123250	0.0000001	
125350	0.5946	
M126166	61.5484	
M126438	123.75	

3.53

MH 13/10/03

NCR: Yes / No

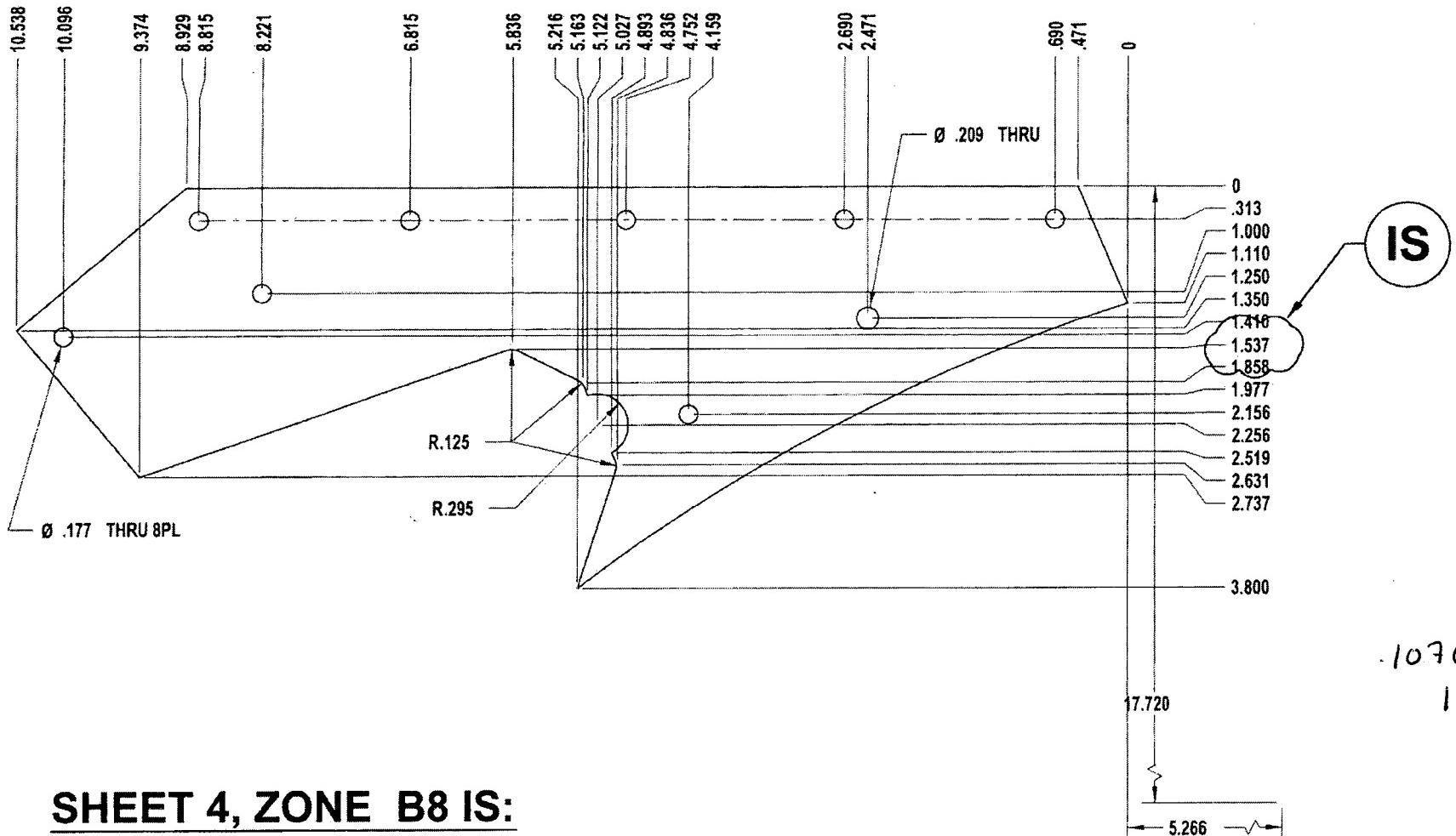
WORK ORDER NON-COMPLIANCE / UPDATE

DQA: Date:

QA Closed: _____ Date: _____

Work Order: _____			DISPOSITION			AGAINST DEPARTMENT/PROCESS					
			Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>	Skid-tube <input type="checkbox"/> Machining <input type="checkbox"/> Thermoforming <input type="checkbox"/> Large Fab <input type="checkbox"/>	Crosstube <input type="checkbox"/> Small Fab <input type="checkbox"/> Finishing <input type="checkbox"/> Composite <input type="checkbox"/>	Water Jet <input type="checkbox"/> Prod. Eng. Coor. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Supplier <input type="checkbox"/>	Engineering <input type="checkbox"/> Quality <input type="checkbox"/> Other <input type="checkbox"/>				
Part No. _____											
NCR No. _____											
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector		
Doc/Data											
Equip/Tooling											
Operator											
Material											
Setup											
Other											
Process											
Supplier											
Training											
Unapproved											
FAULT CATEGORY											
Landing Gear				General							
Bending Centre Not Concentric to O/S Cracks Crushed/Crimped. Cuffs Heat Treat Inspection Strip in Tube Ripples in Bend Torque Waves in Extrusion Turning Sequence Wave/Twist in Tube				Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions <input type="checkbox"/>							
				Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge <input type="checkbox"/> Other <hr/> <hr/> <hr/>							
				Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/>							

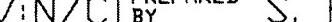
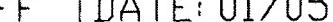
APICAL INDUSTRIES, INC.	ENGINEERING CHANGE NOTICE NO. 03724				SHEET 1 OF 1		
	DWG NO. 646.3300		REV: N/C	PREPARED BY B. PETERS	DATE: 12/05/12		EFFECT ON DWG <input type="checkbox"/> INC. <input checked="" type="checkbox"/> UNINC.
	DWG TITLE: UPPER CUTTER ASSY						
	APPROVED BY:	ENGR: <i>J. Brann</i>	MFG: <i>Darrel Baker</i>	QC: <i>S. D.</i>	EFF: NEXT ORDER		
TRANSACTION CODES (TC) A-ADD C-CREATE R-REVISE D-DELETE		REASON: REVISED ORDINATE DIMENSION.			ECR: D-12-025		



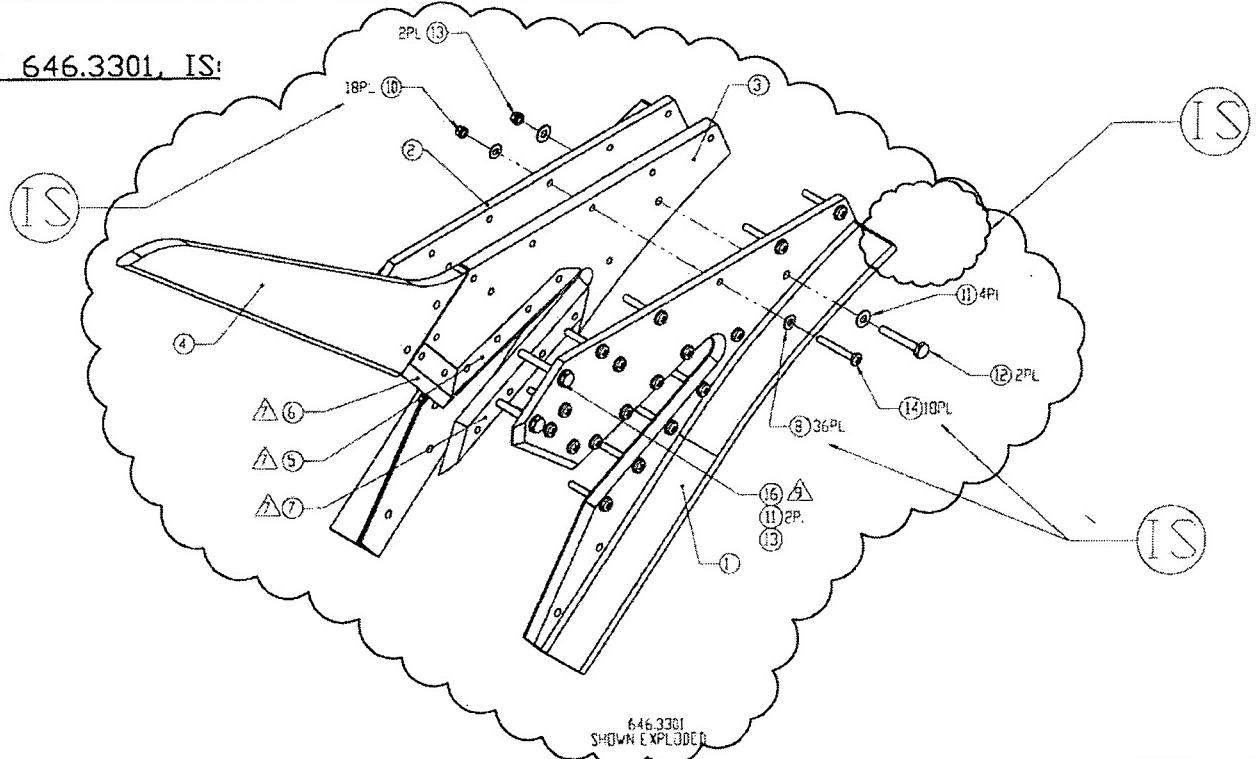
SHEET 4, ZONE B8 IS:

DOCUMENTS EFFECTED:	<input type="checkbox"/> RFMS <input type="checkbox"/> MDL <input type="checkbox"/> INSTALL INSTRUC <input type="checkbox"/> ICA <input type="checkbox"/> BOM	CHANGE CATEGORY <input type="checkbox"/> MAJOR <input checked="" type="checkbox"/> MINOR	DER REVIEW REQUIRED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
---------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------

107683

APICAL INDUSTRIES, INC.	ENGINEERING CHANGE NOTICE NO.			02196	SHEET 1 OF 2	
	DWG NO.	646.3300	REV:N/C	PREPARED BY	S. HUFF	EFFECT ON DWG <input type="checkbox"/> INC. <input checked="" type="checkbox"/> UNINC.
	DWG TITLE:			UPPER CUTTER ASSY		
	APPROVED BY:	ENGR 	MFG 	QC 	EFF:	NEXT ORDER
TRANSACTION CODES (TC): A-ADD C-CREATE R-REVISE D-DELETE	REASON: REMOVED RIVETS IN FAVOR OF ADDITIONAL SCREWS					

SHEET 1, VIEW 646.3301, IS:



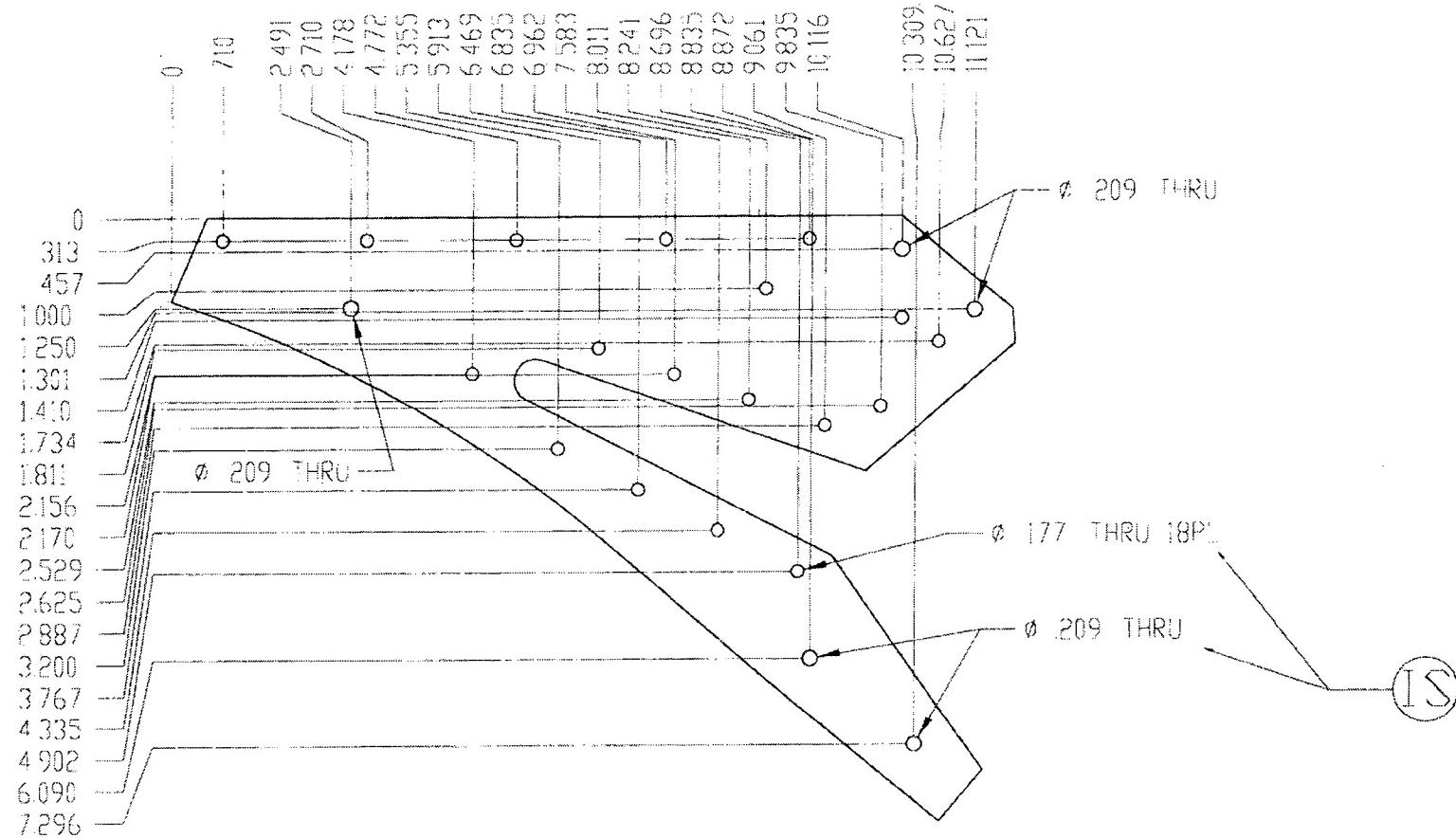
14	R	601.2765		18	SCREW	MS27039-0819
10	R	601.1541		18	LOCKNUT	MS21042L08
9	D	601.2766		3	RIVET	MS20470AD5-18
8	R	601.2764		36	WASHER	NAS1149FN832P
			3301			
F/N	TC	PART NUMBER	QTY	DESCRIPTION		MATERIAL/SPECIFICATION
DOCUMENTS EFFECTED:				<input type="checkbox"/> MDL <input checked="" type="checkbox"/> INSTALL INSTRUC <input checked="" type="checkbox"/> ICA <input type="checkbox"/> FMS <input checked="" type="checkbox"/> BOM	CHANGE CATEGORY <input type="checkbox"/> MAJOR <input checked="" type="checkbox"/> MINOR	DER REVIEW REQUIRED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO

107683

APICAL INDUSTRIES, INC.

ENGINEERING CHANL ORDER NO. 02196

SHEET 2 OF 2

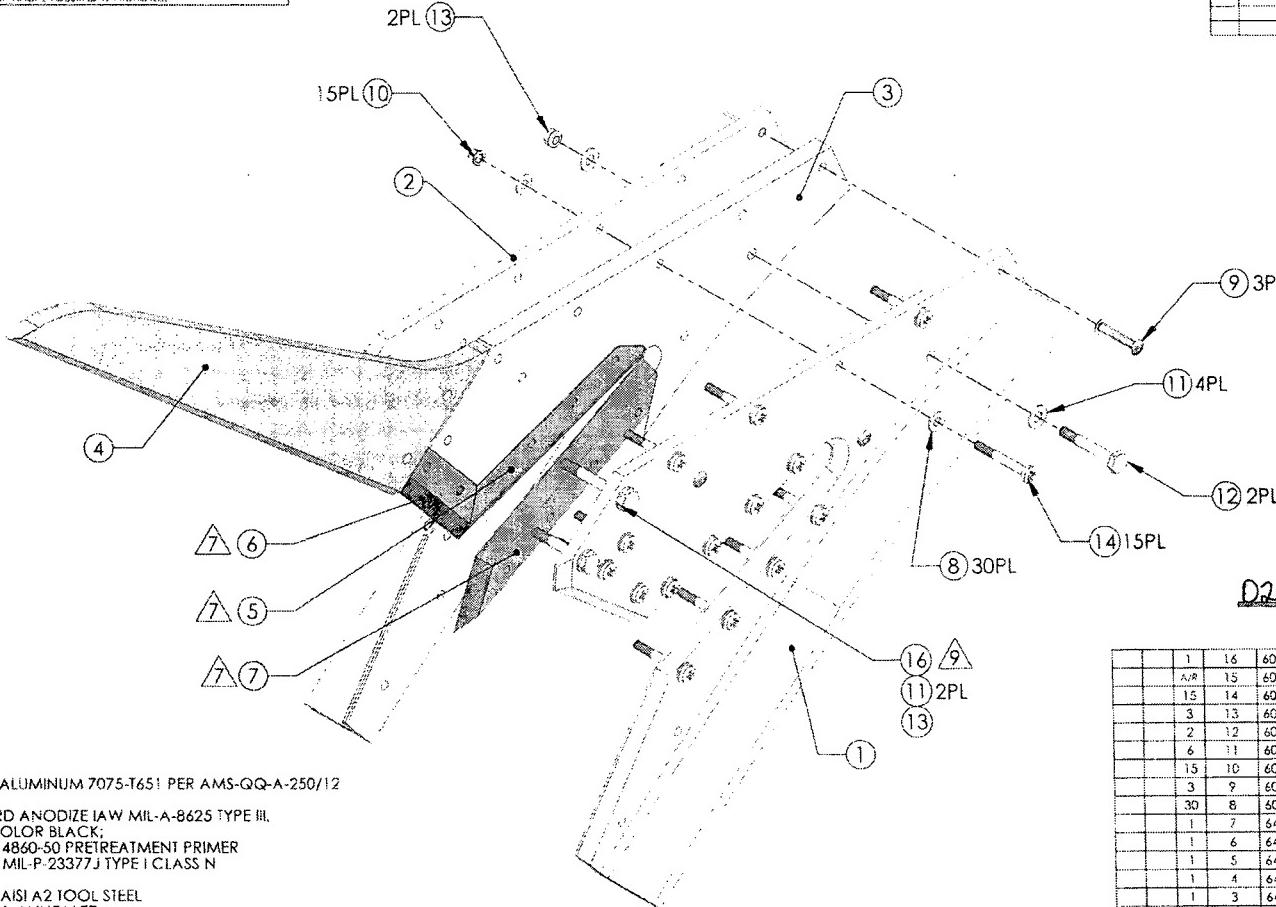
SHEET 3, SECTION VIEW A-A, IS:

SECTION A-A [P6]

F/N	TC	PART NUMBER	QTY	DESCRIPTION	MATERIAL/SPECIFICATION
-----	----	-------------	-----	-------------	------------------------

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF
APCAL INDUSTRIES. ANY REPRODUCTION IN PART OR WHOLE WITHOUT
THE WRITTEN PERMISSION OF APCAL INDUSTRIES IS PROHIBITED.

E&V	DESCRIPTION	DATE	APPROVED



UNINCORPORATED ECN(S)

02196.0372

NOTES:

- ⚠ MATERIAL: ALUMINUM 7075-T651 PER AMS-QQ-A-250/**
⚠ FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE III

- ~~223~~ FINISH, HARD ANODIZE IAW MIL-A-6623 TYPE
CLASS 2, COLOR BLACK;
CARDINAL 4860-50 PRETREATMENT PRIMER
PRIME IAW MIL-P-23377J TYPE I CLASS N

- (3) MATERIAL: AISI A2 TOOL STEEL
CONDITION: ANNEALED
POST PROCESS: HEAT TREAT TO 58-62 Rc ROCKWELL HARDNESS**

- 4 FINISH: PRIME IAW MIL-P-23377J TYPE I CLASS N**

- 5. DEBURR AND BREAK ALL SHARP EDGES EXCEPT WHERE OTHERWISE NOTED**

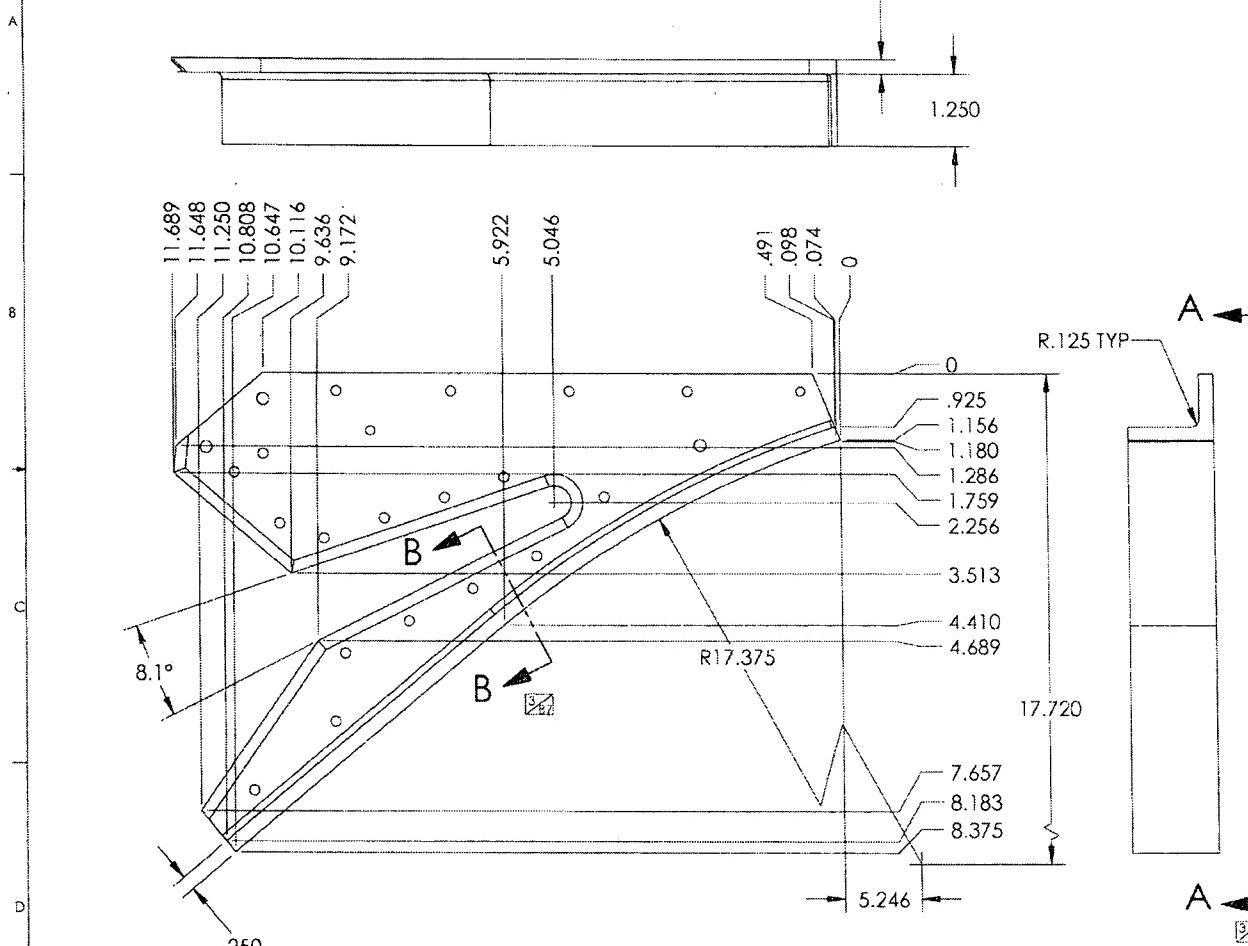
- #### 6 IDENTIFY LAW MPP-120

- **APPLY E/F/N 16 AS REQUIRED TO ALL FIXING SURFACES OF E/F/N S, 6, 8, 7 IRON ASSEMBLY**

646.3301
SHOWN EXPLODED

107683

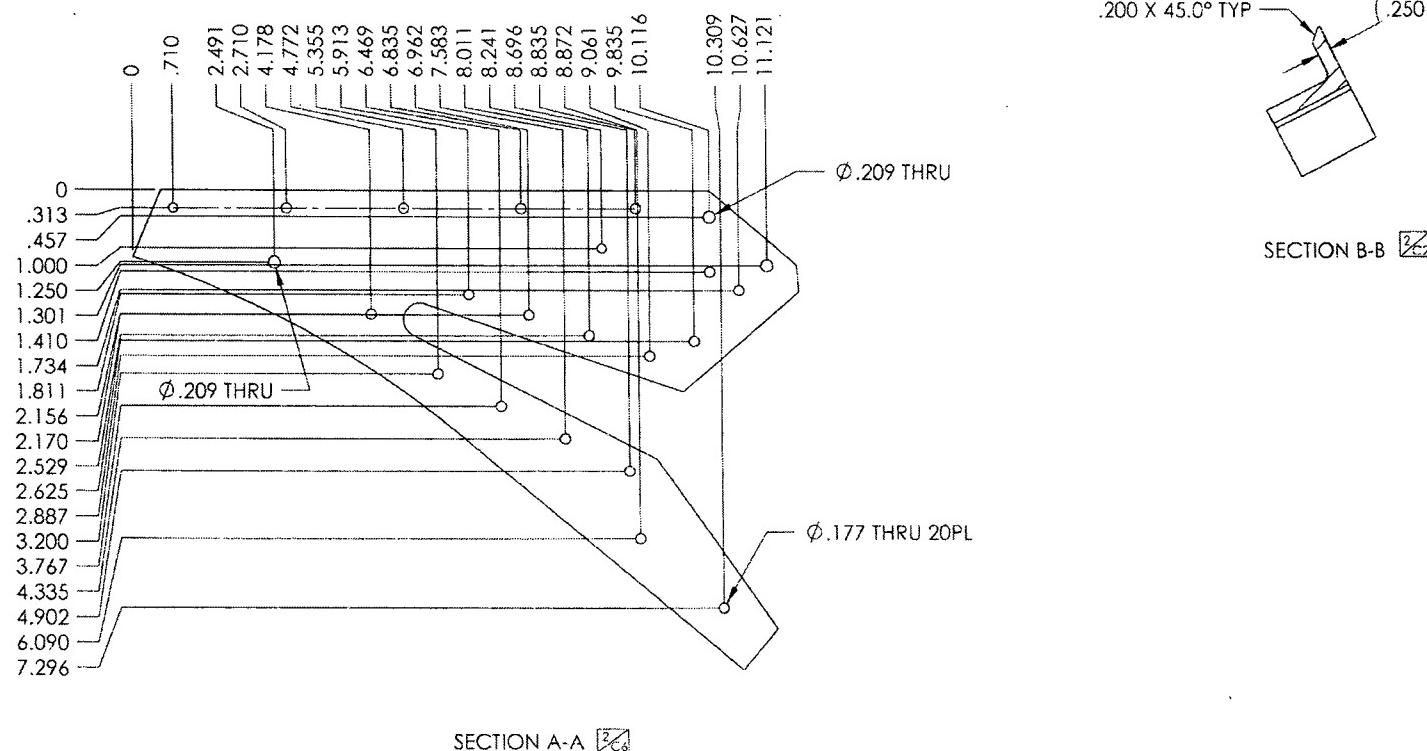
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF
APICAL INDUSTRIES. ANY REPRODUCTION IN PART OR WHOLE WITHOUT
THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.



SEARCHED	INDEXED	SERIALIZED	FILED
DAW-DA-12	GR 26-28		
DRAWN BY	JOHNSON		
S. HIST	P. HIST		
SP. PRTS. & PREVIAL			
P. APPROVED			
CONTRACT NO.			
ITEM NO.			
646.3310			
UPPER CUTTER ASSY			
646.3310 SHOWN			
646.3311 OPPOSITE			
DATE	CAGE CODE	DRAW. NO.	P/N
B 07/16/05		646.3300	N/C
SCALE: NONE			
			SHEET 2 OF 8

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF
APICAL INDUSTRIES. ANY REPRODUCTION IN PART OR WHOLE WITHOUT
THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

107683

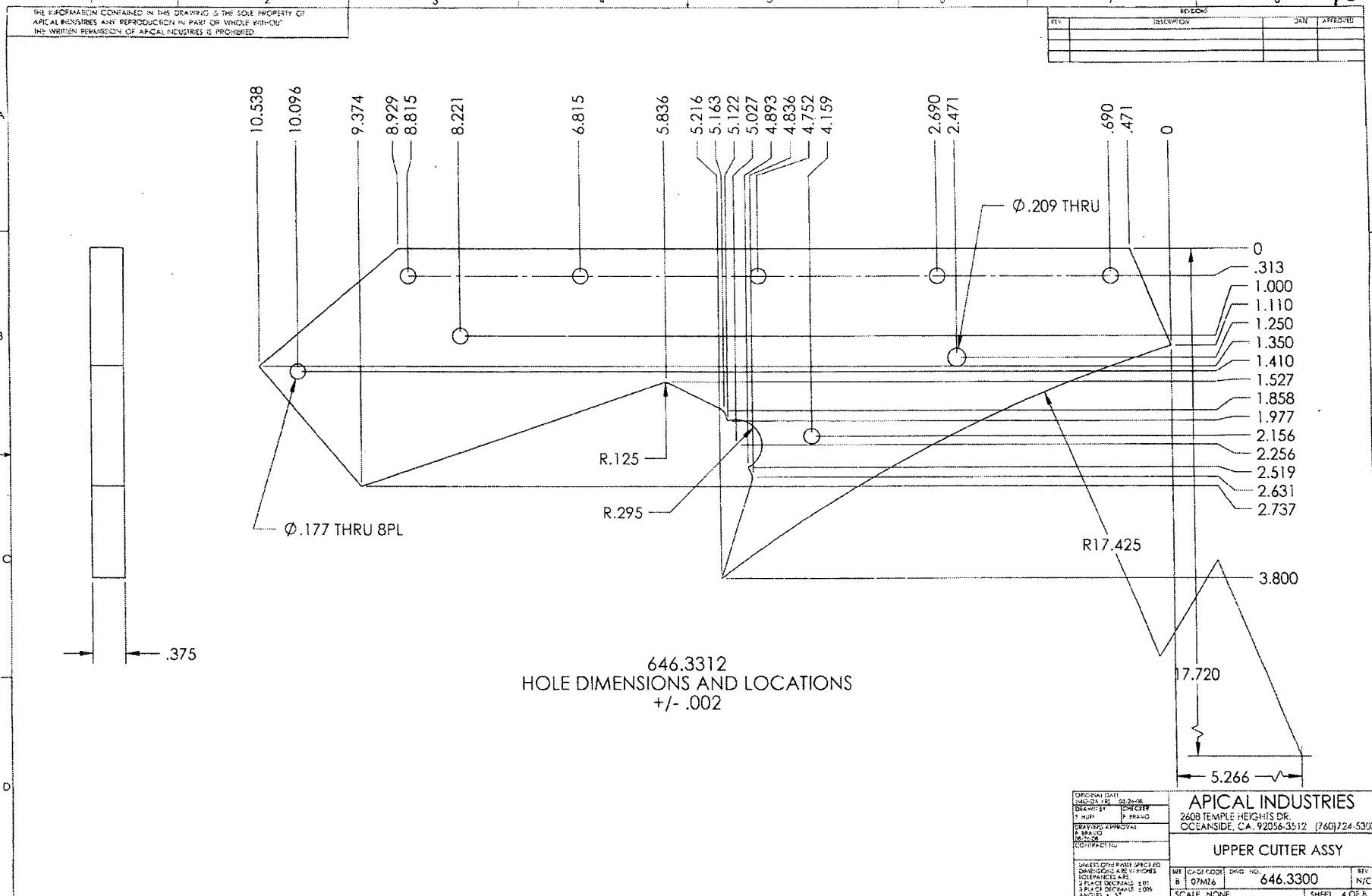


OPEN DATE DISC-UP TO	06/26/08	APICAL INDUSTRIES
SHIP DATE	06/26/08	2608 TEMPLE HEIGHTS DR.
ITEM	P-BB-AV01	OCEANSIDE, CA. 92056-3512 (760)724-5303
SHIP TO / RECIPIENT		
DISPATCH NO:		
UNIVERSITY OF CALIFORNIA SAN DIEGO LIBRARIES ART COLLECTIONS TECHNICAL SUPPORT CENTER 201 SERIALS SECT. 201 SERIALS SECT. 205		
SERIAL	CACHE CODE	SHIP TO
B	M726	646.3300
SCALE: NONE		SHIP TO: 3 OF 6

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF
APICAL INDUSTRIES. ANY REPRODUCTION IN PART OR WHOLE WITHOUT
THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

REV.	DESCRIPTION	DATE	APPROVED

107683



DRAWN BY: <i>[Signature]</i>	DESIGNED BY: <i>[Signature]</i>
TITLE: <i>UPPER CUTTER ASSY</i>	PRINTING APPROVAL
P. SAWYER	P. SAWYER
REVISIONS	REVISIONS
0	0

APICAL INDUSTRIES
260B TEMPLE HEIGHTS DR.
OCEANSIDE, CA. 92056-3512 (760)724-5300

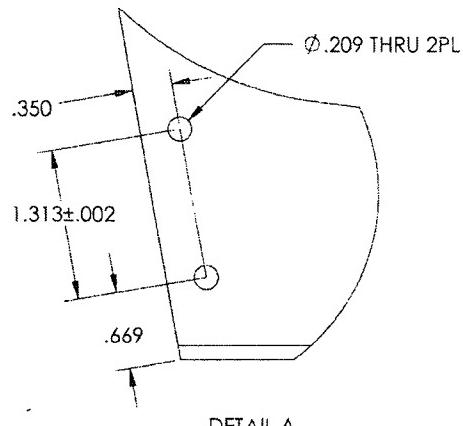
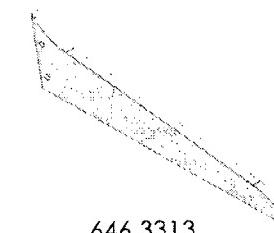
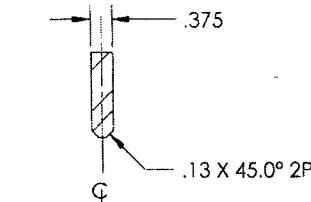
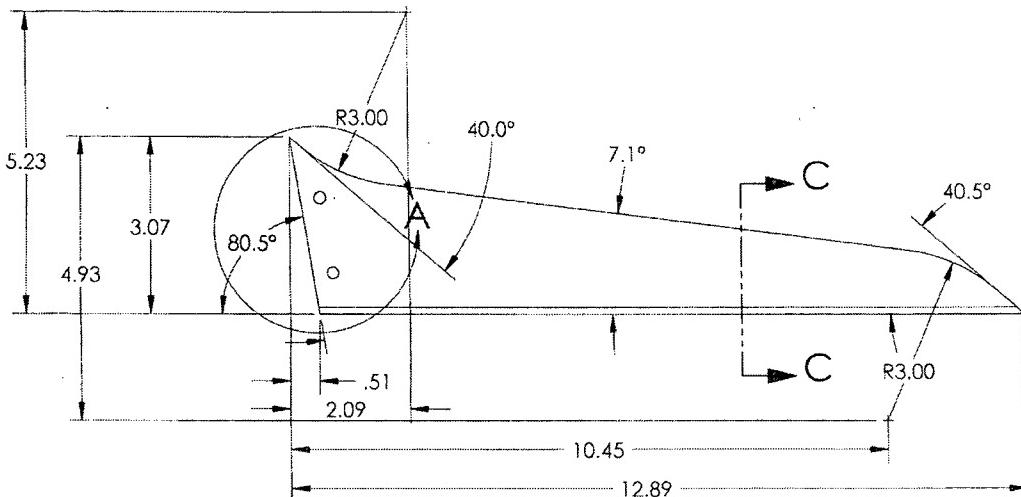
UPPER CUTTER ASSY

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES LOCATIONS ARE IN MILLIMETERS 2 PLACE DECIMAL ±0.01 3 PLACE DECIMAL ±0.001 ANGLES ± 3°	REF: B CAGE CODE: 07M16 Dwg. No: 646.3300 SCALE: NONE	REV: N/C SHEET: 4 OF 8
----------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------	---------------------------

107683

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF
APICAL INDUSTRIES. ANY REPRODUCTION IN PART OR WHOLE WITHOUT
THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

REV/NO.	DESCRIPTION	DATE	APPROVED



DRAWN ON DATE 05/22/01 GS-2008	APICAL INDUSTRIES
DRAWN BY S. CHESTER	2668 TEMPLE HEIGHTS DR.
S. MFG. P. BRAVO	OCEANSIDE, CA. 92056-3512 (760)724-5380
DRAWING APPROVAL	
REVISIONS	
COMMENTS	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE IN THOUSANDS OF AN INCHES (.001) ANGLES IN DEGREES	REV. NO. B SCALE: NONE SHEET 5 OF 6
DATE: 05/22/01	CAGE CODE: 07476 Dwg. No: 646.3300 REV. NO.: N/C

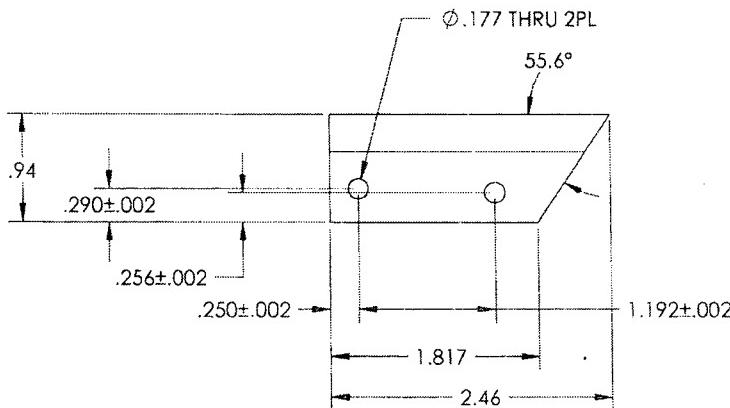
UPPER CUTTER ASSY

107083

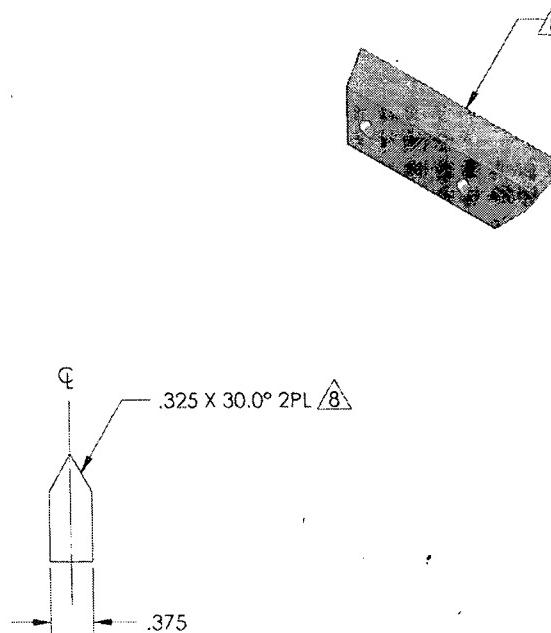
1 2 3 4 5 6 7 8
 THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF
 APICAL INDUSTRIES AND REPRODUCTION IN PART OR WHOLE WITHOUT
 THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

REV	DESCRIPTION	DATE	APPROVED

A



B



C

646.3315

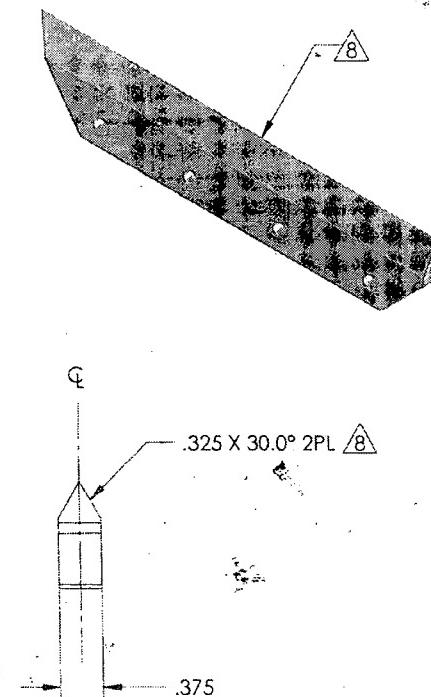
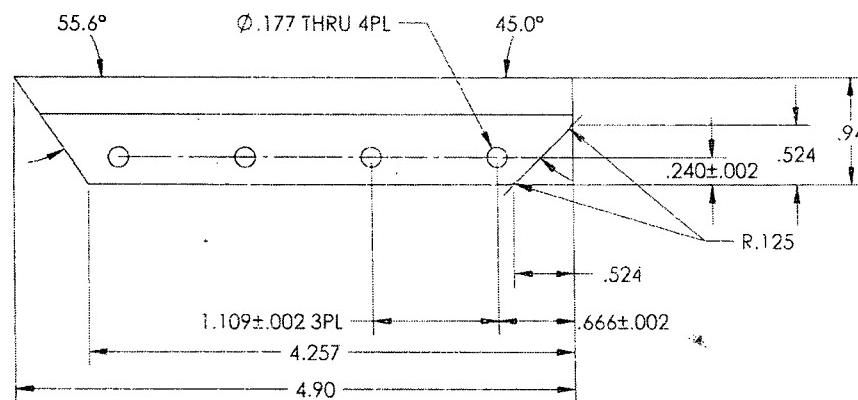
DRWLR: JSM	MDL: 102	ED: 2-26-08	APCAL: S. SCHNEIDER	1	APCAL INDUSTRIES
S. MULF:	P. BRVO				2608 TEMPLE HEIGHTS DR,
PRINTING APPROVAL	BY: P. BRVO				OCEANSIDE, CA. 92056-3512 (760)724-5300
PC: 2008	QC: 2008				
CO: 2008	PA: 2008				
UPPER CUTTER ASSY					
UNIVERSITY OF CALIFORNIA	COLLEGE OF ART & DESIGN	DESIGNER: J. SMITH	DATE: 02/26/08	SCALE: NONE	REV: N/C
FOR: APICAL INDUSTRIES	DEPT: 102	2 PLACE SPECIFICATIONS: 1000	SET: B	CAGE CODE: 07M16	DWG. NO: 646.3300
ADDRESS: 2608 TEMPLE HEIGHTS DR	SECTION: 1	ANGLES: 1000	LINE: 1	SCALE: 1:1	SHEET 1 OF 8

1 2
3 4 5 6 7 8

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF
APICAL INDUSTRIES AND REPRODUCTION IN PART OR WHOLE WITHOUT
THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

REV	DESCRIPTION	DATE	APPROVED

107.683



646.3314

DRAWN BY: [Signature]	APICAL INDUSTRIES
DESIGNED BY: [Signature]	2608 TEMPLE HEIGHTS DR.
SPAWNED BY: [Signature]	OCEANSIDE, CA 92056-3512 (760)724-5300
MAKER: [Signature]	
DRAWING APPROVAL	
REVIEWED	
QC APPROVED	
CONTRACTED	
COPIES ISSUED	
UNPRINTED COPIES SPECIFIED	
STAMPED CHECKED AND APPROVED	
TO: [Signature]	FACE DEPTH: ±0.1
BY: [Signature]	FACE DEPTH: ±0.1
FOR: [Signature]	SCALE: NONE
REVISIONS: 1.0	Sheet: 6 of 6

DART AEROSPACE LTD	Work Order:	107683
Description:	Part Number:	
Inspection Dwg:	Rev:	Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

Measured by: JFC	Audited by: B.A. DAS Date: 13/10/07	Preliminary Approval:
Date: 20/3-10-06	Date: 13/10/07	Date:

Rev	Date	Change	Revised by	Approved
E	10.04.14	Added preliminary approval	KJ	

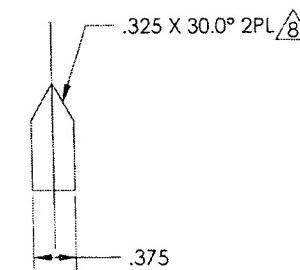
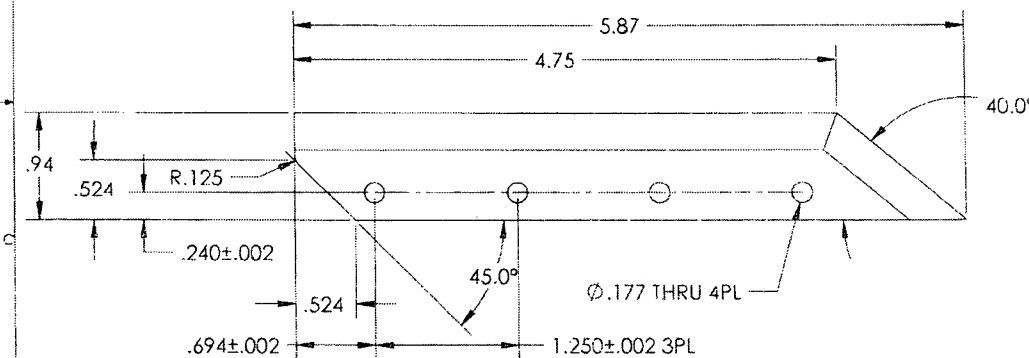
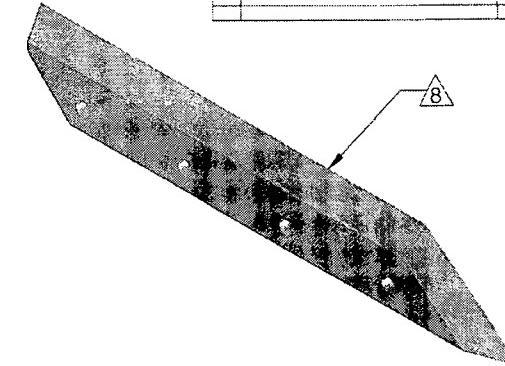
H:\FORMS\Quality Assurance\approved QA\FAI revE

10.04.15

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF
APICAL INDUSTRIES. ANY REPRODUCTION IN PART OR WHOLE WITHOUT
THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

107683

VERSION		DESCRIPTION	DATE	APPROVED



646.3316

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC, J7R 5A8

Tel: 450-473-1884 / Fax: 450-491-5498

Certificat de Conformité Détailé

Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
190086	1

CLIENT / customer 215

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

1

ON K6A 1K7

COMMANDE DU CLIENT customer po	BON DE LIVRAISON DU CLIENT customer shipper no.	MATÉRIEL material	CODE DE TRAITEMENT mat'l heat code	NUMÉRO DE LOT lot number
PO21635		A2		

SPÉCIFICATIONS DU PROCÉDÉ processing specifications

VAC HARDEN

HARDEN AND TEMPER

EXIGENCE / requirement	SPÉCIFICATIONS / specified TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results
HARDNESS	58 - 62 HRC	5 59.0 - 61.0 HRC

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
37	13	646.3015 (21) BLADE REFERENCE: 107339 MATERIAL: A2 (8) 646.3315 BLADE REFERENCE: 107680 MATERIAL: A2 (8) 646.3314 BLADE REFERENCE: 107683 MATERIAL: A2 CONTENANT: 1 BOÎTE DE CARTON

Operation	Temp. spécifiée Specified Temp	Temps de trempe Spécifié Specified Soak Temp	Atmosphere	Carbone Carbon Potential	Q-Media Q-Temp	Four # Furnace #	Date Départ Start Date	Heure d'entrée Time In	Heure de sortie Time Out	Date Complétée Date complete
1.00 CONT. INIT.	LAVAGE		si nécessaire							
2.00 PREPARING	COMPTAGE									
3.00 PREHEAT 1	1200	0:30	VAC			390				
4.00 PREHEAT 2	1500	0:30	VAC			390				

METCOR INC.
560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC, J7R 5A8
Tel: 450-473-1884 / Fax: 450-491-5498

Tel: 450-473-1884 / Fax: 450-491-5498

Certificat de Conformité Détailé

Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
190086	1

CLIENT / customer 215

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

1

ON K6A 1K7

Operation	Temp. spécifiée Specified Temp	Temps de trempe Spécifié Specified Soak Temp	Atmosphere	Carbone Carbon Potential	Q-Media Q-Temp	Four # Furnace #	Date Départ Start Date	Heure d'entrée Time In	Heure de sortie Time Out	Date Complétée Date complete
5.00 VAC HARDE	1800	1 hrs 30 minutes	VAC		AZOTE	390				
6.00 TEMPER	400+/-10°F	2 hrs	air			651				
7.00 TEMPER 2	400+/-10°F	2 hrs	air			651				
8.00 HARDN INS										
9.00 FINAL INSP							10-16-2013			10-16-2013

COMMENTAIRES / comments

Le traitement thermique a été fait en utilisant des équipements en conformité avec la spécification demandée. Toutes les opérations de traitement thermique ont été faites en conformité avec les requis de la spécification demandée et toutes les vérifications et les tests demandés ont été faites et documentés. Aucun changement ou dérogation n'a été faite par rapport au traitement thermique demandé. On certifie que le matériel a été fabriqué, échantillonné, testé et inspecté en accord avec les spécifications du matériel et le bon de commande et le matériel rencontre les exigences spécifiées.

All the heat treatment processing performed on this order was accomplished using heat treatment equipment compliant with the requested heat treatment specification.

All the heat treatment operations were accomplished in accordance with the requested/required heat treatment specification and all required verifications test have been performed and documented.

and all required verifications/test have been performed and
No unauthorized changes or deviations to required heat treatment specifications or procedures have been performed.
We certify that the material was manufactured, sampled, tested and inspected in accordance with the material specification
and the purchase order and was found to meet the requirements.

APPROUVÉ par / Approved by:

DATE: 2013-10-31